Space Weather Forecast

Issued on Thursday, 02 June 2022 at 13:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Slight chance of G1/Minor Storm intervals late day 4 (5th) from CME arrival.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with a common class flare observed from an eruption on the east limb. There are four sunspot regions on the visible disc, none of which have shown significant activity, but with the most prominent in the northwest quadrant. There is also an interesting sunspot in the southern central disc, as whilst small and simple, it has the reverse polarity to what would be expected for a south hemisphere spot during this solar cycle. Although currently, this has also shown no notable activity. The other two region are small unipolar spots. A potentially Earth-directed coronal mass ejection (CME) was observed from the eruption of a "filament" in the southwest disc although further analysis is required. (A filament is a line of plasma held together by the Suns magnetic field)

Solar Wind / Geomagnetic Activity: The solar wind has declined from slightly elevated to near background levels, between 350-400 km/s. The total magnetic field carried by the solar wind has been weak, with the important north-south component also only varying weakly. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Very Low, with a chance of further Common-class flares and a slight chance of Moderate-class flares.

Solar Wind / Geomagnetic Activity: There is the slight chance of the weak Earth-directed CME from a filament eruption on the 1st arriving late on day 4 (5th June), although confidence is low. The CME on the 2nd has also been given a preliminary analysis, perhaps also giving a glancing impact on the 5th, although further assessment is required. Otherwise, solar winds are expected to remain at background throughout the period. Geomagnetic activity is forecast to be mostly Quiet, but with a chance of rising to Active to G1 Minor Storm from any CME arrival on day 4 (5th).

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.